

A. INTRODUCTION

This chapter presents the findings of the hazardous materials assessment and identifies potential issues of concern that could pose a hazard to workers, the community, or the environment associated with the proposed project. The proposed project would involve in-ground construction related to excavation below and just outside of the Armory building for new footings and garage entrances.

This assessment was developed from the findings of a Phase I Environmental Site Assessment (ESA) and multiple Phase II Environmental Site Investigations (ESIs). Phase I ESAs identify the potential for contamination through records and historical review (but not intrusive investigation) and Phase II ESIs further investigate that potential through laboratory analysis of samples (e.g., of soil, groundwater, and soil vapor).

Environmental conditions resulting from previous and existing uses, both on-site and in the surrounding area, were assessed and documented in:

- Phase I ESA, Kingsbridge Armory—29 West Kingsbridge Road (AECOM, June 2013).
- Asbestos Investigation, Kingsbridge Armory (Langan Engineering & Environmental Services, P.C., October 2008).
- Phase II ESA Report, Kingsbridge Armory (TRC Environmental Corporation, September 2007)
- Phase II ESI Report, Kingsbridge Armory—29 West Kingsbridge Road (Langan Engineering & Environmental Services, P.C., Draft November 2008).
- Supplemental Groundwater Investigation Report, Kingsbridge Armory (Langan Engineering & Environmental Services, P.C., June 2009).
- Phase II Supplemental Environmental Site Investigation Report (Langan Engineering & Environmental Services, P.C., June 2013).

CONCLUSIONS

With the implementation of the remediation measures included in Section D, no significant adverse impacts related to hazardous materials would be expected to occur as a result of construction of the proposed project. Following construction of the proposed project, there would be no further potential for significant adverse impacts.

B. EXISTING CONDITIONS**SUBSURFACE CONDITIONS**

The project site is located approximately 130 to 140 feet above mean sea level. The site is underlain by historical fill material to depths of 6 to 25 feet below sidewalk grade but extending to approximately 50 feet in some areas. Silty sand underlies the fill material and varies in

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thickness from 3 to 37 feet. Decomposed bedrock was encountered at 8 to 50 feet below sidewalk grade and varies from 2 to 17 feet in thickness. Bedrock in the area reportedly consists of Fordham Gneiss. Groundwater elevations generally range from about 115 feet (above mean sea level) on the eastern portion of the site to 109 feet on the western portion of the site. Depth to groundwater in exterior wells ranged from 11.6 feet north of the building to 30.4 feet in the parking area near Reservoir Avenue. Depth in monitoring wells in the Armory's sub-cellar ranged from 4.3 feet in the northwest corner of the building, to 6.2 feet in the southeastern corner of the building. Groundwater is estimated to be flowing southwest conforming to the topography; however, actual depth and flow direction could be influenced by past filling activities, underground openings or obstructions, nearby water bodies, bedrock geology, and other factors. Groundwater in the Bronx is not used as a potable (drinking) water source.

PHASE I ENVIRONMENTAL SITE ASSESSMENT

The Phase I review included: Sanborn™ Fire Insurance maps; environmental regulatory agency databases identifying state and/or federally-listed sites; City Directory Search and records (including electronic New York City Department of Buildings [DOB] and New York City Fire Department [FDNY] records); historical aerial photographs, and historical topographic maps. In addition, reconnaissance of the site and surrounding neighborhood was performed. The research indicated that the site and surrounding area was developed in the middle to late 1800s. The area has since included residential, commercial, and small industrial facilities.

The site was originally below water along the southern portion of the Jerome Park Reservoir in the late 1800s. Construction of the Armory was completed in 1917. The Phase I ESA identified the following:

- Three earthen-floored rifle and pistol ranges with lead in the form of bullets within the walls and floors.
- Various 55 gallon drums and one 30 gallon drum were encountered throughout the building and along the western exterior (some empty and others with unknown contents).
- Storage of gasoline, diesel fuel and paint-related products used by Graffiti Free NYC.
- Other potentially hazardous materials were identified throughout the building such as deteriorated mechanical equipment (e.g., boilers and air conditioning units) and debris that may contain polychlorinated biphenyls (PCBs), lubricating oils, refrigerants, etc. Lead-based paint (LBP) and asbestos-containing materials (ACMs), e.g., in pipe insulation and floor tile were also suspected to be present,
- PCBs may be present in lighting ballasts as well as in window, bathroom, and locker room caulking.
- A sump pump was located in the lower basement.
- Unknown urban fill material which likely underlies much of the project site.
- Potential off-site sources including surrounding industrial and commercial properties that may have released a variety of chemicals including petroleum.

PHASE II AND SUPPLEMENTAL SITE INVESTIGATION REPORTS

Using the findings of the Phase I ESA, three subsurface (Phase II) investigations, and a supplemental groundwater investigation, were conducted including:

- Geophysical surveys to identify potential utilities and investigate possible buried storage tanks and their associated piping;
- Excavation of 10 test pits to confirm possible underground storage tank (UST) locations and other underground anomalies identified by the geophysical survey;
- Advancement of 46 soil borings to investigate subsurface conditions;
- Installation of ten groundwater monitoring wells to investigate groundwater quality; and
- Collection of five soil vapor samples and one indoor air sample,

The Phase II investigations found:

- Groundwater analytical results detected volatile and semi-volatile organic compounds (VOCs and SVOCs), though the source (whether on-site or off-site) could not be determined. In the 2013 sampling, levels of VOCs and SVOCs were below drinking water standards (with the exception of methylene chloride which was judged to be a laboratory artifact).
- Lead levels in certain soil samples 6 inches to 2.5 feet below ground surface of the pistol/rifle range exceeded the regulatory thresholds for hazardous waste.
- Levels of SVOCs and metals in soil samples were consistent with and likely attributable to those typically found in urban fill materials in New York City.
- A possible abandoned UST located underneath the guard booth near the western entrance.
- No reportable petroleum impacts to the groundwater or soil. Levels of VOCs in soil in the 2013 sampling were below the most stringent state guidelines (6 NYCRR Part 375-6.3),
- Although above background levels of some VOCs were found in certain soil vapor samples, none were at levels requiring further monitoring or mitigation.

C. THE FUTURE WITHOUT THE PROPOSED PROJECT

This analysis assumes that without the proposed project, the project site would remain occupied by a largely vacant building and it is likely that remediation of hazardous materials would not occur.

D. PROBABLE IMPACTS OF THE PROPOSED PROJECT

There is a potential for adverse impacts associated with excavation for new construction (e.g., for footings below the existing basement, for the new garage entrance ramp west of the building and for modifications to the entrance on the north side of the building) resulting from the known and potential presence of subsurface contamination, and with demolition/renovation, related to materials within the structures. Although these activities could increase pathways for human exposure, significant adverse impacts would be avoided by performing construction activities in accordance with the measures identified below.

A Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP) would be prepared and submitted to New York City Department of Environmental Protection (DEP) for review and approval. The RAP would include procedures to identify and manage both known contamination (e.g., petroleum storage tanks and lead-contaminated soil in the firing ranges) and unexpectedly encountered contamination. All activities involving disturbance of existing soil would be conducted in accordance with the CHASP which details measures to reduce the

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potential for exposure (e.g., dust control) as well as measures (such as air testing) to ensure that exposure to construction workers and the surrounding community would not occur.

During or prior to renovation, the following measures would be undertaken:

- All USTs and aboveground storage tanks (ASTs) would be properly registered, if required, with New York State Department of Environmental Conservation (NYSDEC) and the FDNY, and closed and removed in accordance with applicable regulatory requirements.
- All material that needs to be disposed of (e.g., both contaminated soil and excess fill, including demolition/renovation debris) would be properly handled and disposed of off-site in accordance with applicable regulatory requirements. Should contaminated soil and/or petroleum tanks be encountered, applicable regulatory requirements (e.g., those relating to spill reporting) would be followed to address removal of the tanks and any associated soil or groundwater contamination.
- Any remaining chemicals, including petroleum products, would be properly disposed of in accordance with applicable regulatory requirements.
- Unless there is labeling or test data which indicates that fluorescent lights are not mercury- and/or PCB-containing, disposal would be performed in accordance with applicable regulatory requirements.
- Unless the areas to be disturbed are known not to contain asbestos, they would be surveyed for asbestos, and ACMs would be removed and disposed of in accordance with applicable regulatory requirements.
- LBP would be managed in accordance with applicable regulatory requirements.
- All demolition/renovation debris would be properly handled and disposed of in accordance with all applicable federal, state and local regulations.
- Should dewatering be required during subsurface work, water would be discharged in accordance with DEP Sewer Use Regulations, if necessary, following pretreatment prior to discharge.

With the implementation of these measures, no significant adverse impacts related to hazardous materials would result from construction activities. Following construction, the proposed project would not be expected to have the potential to have significant adverse impacts. *